

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant(s) : HABETHA, et al.
Serial Number : 10/595,827
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Group Art Unit : 2474
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Atty. Docket : 2003P00870WOUS
Title : Method for Access to a Medium by a Multi-Channel Device

APPEAL BRIEF
On Appeal from Group Art Unit 2474

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Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed on
December 14, 2011 and in response to the final Office Action of September 19, 2011.

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I. REAL PARTY IN INTEREST

The real party in interest of the above-identified application is Koninklijke Philips Electronics N.V., the assignee of record, whose assignment is recorded in the USPTO as of June 7, 2007 on three (3) pages beginning at Reel 019395, Frame 0835.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. SUMMARY OF CLAIMED SUBJECT MATTER¹

The claimed invention, as recited in claim 1, is directed to:

a method for accessing a medium by a multi-channel device (page 5, lines 23-26), in which the medium comprises a transmission system having at least two channels (page 8, lines 19-21), the method comprising:

recognizing an idle state and a back-off state (page 2, lines 19-23; page 6, lines 5-6);

determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping (page 9, lines 11-19),

transmitting a message including a preamble and header (PR) and a control section on each channel determined to be either idle or having the back-off underway of the at least two channels that are an object of channel grouping to reserve the at least two channels (page 5, lines 9-17, page 7, lines 22-29), such that a single channel device detects the preamble and header and performs a process according to control information included in the control section (page 7, lines 18-26).

The claimed invention, as recited in claim 6, is directed to:

¹ It should be explicitly noted that it is not Appellant's intention that the currently claimed or described embodiments be limited to operation within the illustrative embodiments described below beyond what is required by the claim language. Further description of the illustrative embodiments are provided indicating portions of the claims which cover the illustrative embodiments merely for compliance with requirements of this appeal without intending to read any further interpreted limitations into the claims as presented.

a method for accessing a medium by a multi-channel device (page 5, lines 23-26), the medium including a transmission system having at least two channels that the multi-channel device intends to call upon for transmission (page 8, lines 19-21), the method comprising:

scanning, by the multi-channel device, the at least two channels to be called upon for transmission (page 9, lines 9-11),

recognizing an idle state and a back-off state (page 2, lines 19-23; page 6, lines 5-6);

determining whether the idle state or the back-off state is underway on a single one of the scanned channels (page 9, lines 11-19);

blocking the single channel determined to be one of either idle or having the back-off underway to other devices by the multi-channel device (page 9, lines 11-12) by transmitting a message including a preamble and header (PR) and a control section, such that a single channel device detects the preamble and header and performs a process according to control information included in the control section (page 7, lines 18-26),

further scanning the other channels to be called upon for transmission and blocking or reserving the other channels on determining that the channel concerned is one of either idle or that a back-off is underway by transmitting another message on that channel concerned (page 9, lines 12-19).

The claimed invention, as recited in claim 11, is directed to:

a method for accessing a medium by a multi-channel device (page 5, lines 23-26), the medium comprises a transmission system having at least two channels that the multi-channel device intends to call upon for transmission (page 8, lines 19-21), wherein a message to be transmitted on the medium comprises a preamble and a header (PR) followed by at least one of a control section or data section (page 5, lines 9-17), the method comprising:

scanning the at least two channels to be called upon for transmission (page 9, lines 9-11),

recognizing an idle state and a back-off state (page 2, lines 19-23; page 6, lines 5-6);

determining whether the idle state or the back-off state is underway on each channel of the at least two channels to be called upon for transmission (page 9, lines 11-19),

repeating the preamble and header (PR) of the message on all channels to be called upon for transmission that are determined to be either idle or having a back-off underway (page 9, lines 1-16), and

reserving or blocking, by a third device independent of a transmitter and receiver of the message, the channels in the channel group for the multi-channel device that intends to transmit, such that a single channel device detects the preamble and header and performs a waiting process (page 9, lines 12-19).

IV. ARGUMENT

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

A. Claims 1, 3-5, 17, and 18 are not properly rejected under 35 U.S.C. §102(e) as anticipated by US Patent 7,039,412 to Sandhu et al. (“Sandhu”).

1. Claim 1

Independent claim 1 recites:

A method for accessing a medium by a multi-channel device, in which the medium comprises a transmission system having at least two channels, the method comprising:
recognizing an idle state and a back-off state;
determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping,
transmitting a message including a preamble and header (PR) and a control section on each channel determined to be either idle or having the back-off underway of the at least two channels that are an object of channel grouping to reserve the at least two channels,
such that a single channel device detects the preamble and header and performs a process according to control information included in the control section.
Emphasis added.

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

For example, beginning at the bottom of page 2 of the Office Action, paragraph 3 in the Response to Arguments section, the Examiner contends that the claim does not distinguish between an idle state and a back-off state. The Examiner further alleges

that the language recited in the claim is broadly interpreted to read on the channel alone and not just the back-off state of a device.

Appellant respectfully points out that claim 1 recites, in part, "recognizing an idle state and a back-off state." Emphasis added.

In other words, claim 1 requires that both an idle state and a back-off state are recognized. Therefore, Appellant respectfully submits that an idle state and a back-off state of claim 1 are distinct. Thus, claim 1 sufficiently distinguishes between an idle state and a back-off state.

Also, beginning at the bottom of page 2 of the Office Action, paragraph 3, the Examiner appears to interpret a "back-off" condition to be a waiting period, and an "idle" state to be no transmissions across the channel. At the top of page 3 of the Office Action, paragraph 3, the Examiner further asserts that the claimed back-off state "is broadly interpreted to read on the channel alone and not just the back-off state of a device."

Appellant respectfully traverses the Examiner's interpretation of claim 1.

MPEP 2106 defines that the meaning of the words in a claim must be construed in the context of the specification and drawings. In *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301 (Fed. Cir. 1999), the Federal Circuit held that the meaning of words used in a claim is not construed in a "lexicographic vacuum, but *in the context of the specification and drawings*." Emphasis added. See MPEP 2106(I)(C). Any special meaning assigned to a term "must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of

experience in the field of the invention.” *Multiform Desiccants Inc. v. Medzam Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998). See also MPEP 2111.01.

For instance, Appellant’s specification at page 2, lines 19-23, clearly defines a back-off process is part of a collision avoidance mechanism in which a station listens to a channel after it learns that the channel is free, then the station waits (or backs off) from transmission for a period of time, and if the channel is still free after the backoff period, then the station can transmit. In other words, the station is intentionally withholding transmission during the back-off period.

Appellant respectfully submits that when read in light of the specification, the claimed back-off state may not be broadly interpreted to read on the channel alone. In contrast to the Examiner’s contention on page 3 of the Office Action, the claimed back-off state must be interpreted as the back-off state of a device.

Furthermore, Appellant’s specification clearly distinguishes the claimed back-off state from the claimed idle state. For example, a channel is considered to be idle when the channel is not in use. See Appellant’s specification at least at figs 3 and 4, and page 8, lines 24-33.

For at least the reasons noted above, Appellant respectfully submits that the claimed “recognizing an idle state and a back-off state” should be interpreted as sufficiently distinguishing between an idle state and a back-off state. Appellant respectfully further submits that the claimed “back-off state” should be interpreted as the back-off state of a device.

On page 4 of the Office Action, the Examiner alleges that Sandhu, col. 4, lines 17-49 discloses the claimed recognizing an idle state and a back-off state.

Appellant respectfully traverses the Examiner's interpretation of Sandhu with respect to claim 1.

Sandhu seems to relate to a method for transmitting wireless signals on multiple frequency channels for avoiding a collision in a wireless network. Sandhu, col. 3, lines 9-10 and col. 4, lines 30-35 appears to teach a device may remain quiet during an exchange. Sandhu, col. 4, lines 17-49 seems to suggest a legacy client device may listen to a channel as part of the CCA process to determine a duration for which the legacy device is to remain quiet to avoid packet collisions in the network. In other words, if the channel is not clear, then Sandhu's device remains quiet.

However, Sandhu's process does not determine whether an idle state or a back-off state is underway. In contrast, Sandhu, col. 2, lines 57-59, discloses, before transmitting on a channel, a wireless device will first "listen" to the channel to determine whether any other devices are currently transmitting. If the channel is not clear, then Sandhu's device remains quiet.

Although Sandhu discloses determining whether any other devices are currently transmitting, Sandhu does not recognize an idle state and a back-off state. Therefore, Sandhu does not anticipate claim 1 and the rejection of claim 1 under 35 USC 102(e) should be reversed.

In addition, since it is established that Sandhu does not recognize an idle state and a back-off state, Appellant respectfully submits that Sandhu does not disclose:

determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping. Therefore, claim 1 is patentable over Sandhu and the 102 rejection should be reversed.

Furthermore, at the bottom of page 4 of the Office Action the Examiner alleges that Sandhu, col. 3 line 59-col. 4, line 39 discloses transmitting a message to reserve the at least two channels.

These sections of Sandhu appear to describe the structure of a mixed protocol data unit (PPDU) and predicting the duration of the PPDU so that the device can remain quiet during that time in order to avoid collisions. This is different from transmitting a message to reserve the channels. The prediction of a PPDU duration in order to remain quiet during the predicted duration is distinct from transmitting a message to reserve channels. Accordingly, claim 1 is patentable over Sandhu and the rejection under 35 U.S.C. 102(e) should be reversed.

For at least the reasons discussed above, Appellant respectfully submits that Sandhu does not disclose recognizing an idle state and a back-off state; determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping, transmitting a message including a preamble and header (PR) and a control section on each channel determined to be either idle or having the back-off underway of the at least two channels that are an object of channel grouping to reserve the at least two channels, as required in claim 1. Accordingly, Sandhu does not disclose every feature of claim 1. Therefore, claim 1 is

patentable over Sandhu, and the rejection of claim 1 should be reversed under 35 U.S.C. §102(e).

2. Claims 3-5, 17, and 18

Dependent claims 3-5, 17, and 18 ultimately depend from allowable independent claim 1. Furthermore, each of dependent claims 3-5, 17, and 18 includes additional distinguishing features. For each of dependent claims 3-5, 17, and 18, Appellant applies the above arguments from claim 1 to the specific interpretations of each of claims 3-5, 17, and 18, respectively. Thus, Appellant respectfully submits that the rejection of each of claims 3-5, 17, and 18 under 35 U.S.C. 102(e) is unfounded and should be reversed.

B. Claims 6-10 are not properly rejected under 35 U.S.C. §103(a) as unpatentable over Sandhu in view of US Patent 7,321,762 to Hoebein (“Hoebein”).

3. Claim 6

Independent claim 6 is different from claim 1. For example, claim 6 includes the features of, in part: recognizing an idle state and a back-off state; determining whether the idle state or the back-off state is underway on a single one of the scanned channels; blocking the single channel determined to be one of either idle or having the back-off underway to other devices by the multi-channel device by transmitting a message including a preamble and header (PR) and a control section, such that a single channel

device detects the preamble and header and performs a process according to control information included in the control section.

Although claim 6 must be interpreted on its own merits, Appellant applies the above arguments for claim 1 to the specific interpretation of claim 6. Hoeben does not cure the deficiencies of Sandhu as noted above with respect to claim 1. Furthermore, the Office Action does not rely on Hoeben for the suggestion of such features. As such, Appellant respectfully submits that claim 6 is patentable over the combination of Sandhu and Hoeben, and respectfully requests the reversal of the rejection of independent claim 11 under 35 U.S.C. 103(a).

4. Claims 7-10

Dependent claims 7-10 ultimately depend from allowable independent claim 6. Furthermore, each of dependent claims 7-10 includes additional distinguishing features. For each of dependent claims 7-10, Appellant applies the above arguments from claim 1 to the specific interpretations of each of claims 7-10, respectively. Thus, Appellant respectfully submits that the rejection of each of claims 7-10 under 35 U.S.C. 103(a) is unfounded and should be reversed.

C. Claims 11-14 are not properly rejected under 35 U.S.C. §103(a) as unpatentable over Sandhu in view of US Patent 7,289,529 to Sherman (“Sherman”).

5. Claim 11

Independent claim 11 is different from claims 1 and 6. For example, claim 11 includes the features of, in part: recognizing an idle state and a back-off state; determining whether the idle state or the back-off state is underway on each channel of the at least two channels to be called upon for transmission, repeating the preamble and header (PR) of the message on all channels to be called upon for transmission that are determined to be either idle or having a back-off underway.

Although claim 11 must be interpreted on its own merits, Appellant applies the above arguments for claim 1 to the specific interpretation of claim 11. Sherman does not cure the deficiencies of Sandhu as noted above with respect to claim 1. Furthermore, the Office Action does not rely on Sherman for the suggestion of such features. As such, Appellant respectfully submits that claim 11 is patentable over the combination of Sandhu and Sherman, and respectfully requests the reversal of the rejection of independent claim 11 under 35 U.S.C. 103(a).

6. Claims 12-14

Dependent claims 12-14 ultimately depend from allowable independent claim 11. Furthermore, each of dependent claims 12-14 includes additional distinguishing features. For each of dependent claims 12-14, Appellant applies the above arguments from claim 11 to the specific interpretations of each of claims 12-14, respectively. Thus, Appellant respectfully submits that the rejection of each of claims 12-14 under 35 U.S.C. 103(a) is unfounded and should be reversed.

D. Claim 15 is not properly rejected under 35 U.S.C. §103(a) as unpatentable over Sandhu in view of Sherman and further in view of US Patent Publication 2005/0111402 to Sawada et al. (“Sawada”).

7. Claim 15

Dependent claim 15 ultimately depends from allowable independent claim 11. Furthermore, dependent claim 15 includes additional distinguishing features. Appellant applies the above arguments from claim 11 to the specific interpretation of claim 15. Sawada does not cure the deficiencies of the combination of Sandhu and Sherman with respect to claim 11. Furthermore, the Examiner does not rely on Sawada for suggesting the features of recognizing an idle state and a back-off state; determining whether the idle state or the back-off state is underway on each channel of the at least two channels to be called upon for transmission, repeating the preamble and header (PR) of the message on all channels to be called upon for transmission that are determined to be either idle or having a back-off underway, as defined in claim 11. Thus, Appellant respectfully submits that the rejection of claim 15 under 35 U.S.C. 103(a) is unfounded and should be reversed.

E. Claim 16 is not properly rejected under 35 U.S.C. §103(a) as unpatentable over Sandhu in view of US Patent 7,415,046 to Beckman et al. (“Beckman”).

8. Claim 16

Dependent claim 16 depends from allowable independent claim 1. Furthermore, dependent claim 16 includes additional distinguishing features. Appellant applies the above arguments from claim 1 to the specific interpretation of claim 16. Beckman does not cure the deficiencies of Sandhu with respect to claim 1. Furthermore, the Examiner does not rely on Beckman for suggesting the features of recognizing an idle state and a back-off state; determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping, transmitting a message including a preamble and header (PR) and a control section on each channel determined to be either idle or having the back-off underway of the at least two channels that are an object of channel grouping to reserve the at least two channels, as defined in claim 1. Thus, Appellant respectfully submits that the rejection of claim 16 under 35 U.S.C. 103(a) is unfounded and should be reversed.

F. Claim 19 is not properly rejected under 35 U.S.C. §103(a) as unpatentable over Sandhu in view of US Patent 7,272,1566 to Shoemake et al. (“Shoemake”).

9. Claim 19

Dependent claim 19 ultimately depends from allowable independent claim 1. Furthermore, dependent claim 19 includes additional distinguishing features. Appellant applies the above arguments from claim 1 to the specific interpretation of claim 19. Shoemake does not cure the deficiencies of Sandhu with respect to claim 1. Furthermore, the Examiner does not rely on Shoemake for suggesting the features of

recognizing an idle state and a back-off state; determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping, transmitting a message including a preamble and header (PR) and a control section on each channel determined to be either idle or having the back-off underway of the at least two channels that are an object of channel grouping to reserve the at least two channels, as defined in claim 1. Thus, Appellant respectfully submits that the rejection of claim 19 under 35 U.S.C. 103(a) is unfounded and should be reversed.

CONCLUSION

In light of the above, Appellant respectfully submits that the rejections of claims 1 and 3-19 are in error, legally and factually, and must be reversed.

Respectfully submitted,

By: /Brian S. Myers/
Brian S. Myers
Myers Wolin, LLC
Reg. No. 46,947

V. CLAIMS APPENDIX

1. (previously presented) A method for accessing a medium by a multi-channel device, in which the medium comprises a transmission system having at least two channels, the method comprising:

recognizing an idle state and a back-off state;

determining whether the idle state or the back-off state is underway on each channel of the at least two channels that are an object of channel grouping,

transmitting a message including a preamble and header (PR) and a control section on each channel determined to be either idle or having the back-off underway of the at least two channels that are an object of channel grouping to reserve the at least two channels, such that a single channel device detects the preamble and header and performs a process according to control information included in the control section.

2. (canceled)

3. (previously presented) The method of claim 1, wherein the message is one of a request-to-send (RTS), clear-to-send (CTS), or acknowledgement (ACK) type.

4. (previously presented) The method of claim 1, wherein the multi-channel device operates in compliance with IEEE 802.11 standard and a medium access control (MAC) protocol, the method further comprises repeating information belonging to the MAC protocol on the at least two channels.

5. (previously presented) The method of claim 1, wherein access to the medium takes place under IEEE 802.11 standard, the method further comprising transmitting RTS, CTS and ACK control frames on the at least two channels, and setting network allocation vectors (NAVs), by single channel devices, based on information in the RTS/CTS control frames.

6. (previously presented) A method for accessing a medium by a multi-channel device, the medium including a transmission system having at least two channels that the multi-channel device intends to call upon for transmission, the method comprising:

scanning, by the multi-channel device, the at least two channels to be called upon for transmission,

recognizing an idle state and a back-off state;

determining whether the idle state or the back-off state is underway on a single one of the scanned channels;

blocking the single channel determined to be one of either idle or having the back-off underway to other devices by the multi-channel device by transmitting a message including a preamble and header (PR) and a control section, such that a single channel device detects the preamble and header and performs a process according to control information included in the control section,

further scanning the other channels to be called upon for transmission and blocking or reserving the other channels on determining that the channel concerned is one of either idle or that a back-off is underway by transmitting another message on that channel concerned.

7. (previously presented) The method of claim 6, further comprising:

blocking the channel by the multi-channel device and a receiving device, each of the devices emitting the message.

8. (previously presented) The method of claim 7, wherein the message is implemented in the form of RTS and CTS frames, the method further comprising:

transmitting an RTS frame on a free channel by the multi-channel device, so that devices in the area surrounding the multi-channel device that is transmitting will set their network allocation vectors (NAVs), and

transmitting a CTS frame on the free channel by the receiving device, so that stations in the area surrounding the receiving station will set their NAVs.

9. (previously presented) The method of claim 7, further comprising transmitting with channel grouping, by the multi-channel device, on all channels that it has previously blocked.

10. (previously presented) The method of claim 6, further comprising
blocking a channel by starting the transmission by the multi-channel station on the single channel, wherein the transmission can be made with or without an RTS-CTS mechanism.

11. (previously presented) A method for accessing a medium by a multi-channel device, the medium comprises a transmission system having at least two channels that the multi-channel device intends to call upon for transmission, wherein a message to be transmitted on the medium comprises a preamble and a header (PR) followed by at least one of a control section or data section, the method comprising:

- scanning the at least two channels to be called upon for transmission, recognizing an idle state and a back-off state;
- determining whether the idle state or the back-off state is underway on each channel of the at least two channels to be called upon for transmission,
- repeating the preamble and header (PR) of the message on all channels to be called upon for transmission that are determined to be either idle or having a back-off underway, and
- reserving or blocking, by a third device independent of a transmitter and receiver of the message, the channels in the channel group for the multi-channel device that intends to transmit, such that a single channel device detects the preamble and header and performs a waiting process.

12. (previously presented) The method of claim 11, further comprising:
coordinating, by the third device, access to the medium for a plurality of channels.

13. (previously presented) The method of claim 11, wherein in the event of individual channels in the channel group not becoming free simultaneously, the third device causes, alternatively,

blocking one channel or individual channels until such time as all the channels in the channel group have become free, or

assigning a channel that has become free immediately to the multi-channel device that intends to transmit.

14. (previously presented) The method of claim 11, wherein the third device is a hybrid coordinator or point coordinator, the method performing the medium access under standard IEEE 802.11.

15. (previously presented) The method of claim 14, further comprising:

transmitting, by the point coordinator or hybrid coordinator, beacons in parallel on all the channels.

16. (previously presented) The method of claim 1, further comprising:

employing Standard Universal Mobile Telecommunication System (UMTS) as the transmission system.

17. (previously presented) A multi-channel device for accessing a medium, the medium comprises a transmission system having at least two channels, the multi-channel device performing the method of claim 1 for accessing the medium.

18. (previously presented) A wireless network comprising a transmission system having at least two channels and at least one multi-channel device as claimed in claim 17.

19. (previously presented) The method as claimed in claim 1, wherein the preamble and header (PR) are repeated in parallel on the at least two channels.